

Please add the following new claim:

--21 (New) A product in accordance with claim 1 comprising a foamed railroad tie.--

### Remarks

Reconsideration and further examination of the above-identified patent application in light of the present Amendment, Reply, and Remarks is respectfully requested.

A Petition for an extension of time is enclosed along with the required extension fee.

A supplemental information disclosure statement and information disclosure citation – U.S. Patent Office form PTO-1449 is enclosed to cite the International Search Report of the corresponding International PCT Patent Application No. PCT/US02/06973 and the Akkapeddi et al., U.S. Patent No. 5,115,018 in compliance with Duty of Disclosure requirements of the U.S. Patent Office Rules.

Claims 1-5, 9-12 and 18-20 were pending prior to this Amendment.

Claims 6-8 and 13-17 have been withdrawn.

Claims 1-5, 9-12 and 18-20 have been amended to more particularly point out and distinguish applicants' invention over the references of record.

Claim 21 has been added.

Claims 1-5, 9-12 and 18-21 are presently pending for the consideration of the Examiner.

A clean version of the entire set of pending claims is enclosed in accordance with 37 CFR 1.121 (c) (3).

Claim 1 as amended pertains to a product primarily of a PET matrix composition of recycled materials comprising PET and elastomeric material. Desirably, the PET matrix composition is of a microcellular closed cell composite with discontinuous voids.

Antecedent basis and support for the amended matter in claim 1 is found in the specification at: page 3, lines 22 et seq.; page 4, lines 26 et seq.; page 5, lines 5-6; page

8, lines 29 et seq.; page 9, lines 6-8; page 10, lines 8-11; page 15, lines 2-4 and 30-31; page 16, lines 1-21 and elsewhere in the specification.

In contrast to applicant's product as now specified in amended claim 1, the cited references of Parker, Lee, Bredael, Segrest, Banerjie and Akkapeddi et al., have a PET presence as an incidental and minor material as a discontinuous filler in some other polymer, such as polyethylene (PE). The references do not disclose a product primarily of a PET matrix composition of recycled materials comprising PET and elastomeric material, let alone a microcellular closed cell composite with discontinuous voids, as required in applicant's amended claim 1.

A prior patent is a reference only for what it clearly discloses or suggests; it is improper use of a patent as a reference to modify it to that which it does not suggest; *In re Hummer*, 113 USPQ 66 (CCPA 1957). See also *In re Stencel*, 4 USPQ2d 1071, 1073 (Fed. Cir. 1987).

The intent of applicant's disclosure is to address the issues that are presented by using recycled PET (as e.g. bottles) with recycled rubber (e.g. powdered tires) in such a manner that PET is the continuous phase matrix resin. The rubber, used to impart metal adhesion (e.g. nails), must be reduced to small particle size to allow for a foaming operation (e.g. crumb rubber would plug the narrow extruder slit or die opening that is required to afford sufficient back-pressure) so that the foaming agent dissolves in the extruded melt. Dispersion of the small rubber particulate can be facilitated by use of a compatibilizing/blending agent. The PET should have sufficient melt viscosity to effectively foam at the die exit and not spit out. High molecular weight PET is required to avoid a large item, e.g. railroad tie, from cracking upon cooling.

Applicant's claims 2-5, 9 and 21 are directly dependant upon applicant's claim 1 and, therefore, requires all the structural elements and limitations of claim 1. Additionally, claim 1-5 and 9 require other structural features and elements, which in combination with the structural elements and limitations of claim 1, are not fairly taught or suggested by the cited references.

Claim 9 has been amended to recite a docking post and telephone pole. Antecedent basis and support for the amended matter in claim 9 is found in the

specification at page 16, lines 22 et seq. and elsewhere in the specification. None of the references discloses a docking post, telephone pole, dock support, deck, boat slip, pier stake shovel, rake, ax handle, hammer, handle, shingle, baseball bat, or cricket bat as specified in applicant's amended claim 9.

Claim 21 has been added to specify a foamed railroad tie. Antecedent basis and support for the amended matter in new claim 21 is found in the specification at page 15, lines 30-31; page 16, lines 1-16; and elsewhere in the specification. While Lee discloses a train rail supporting member, it is formed by press molding (col. 2, lines 63-66) under about 150 to 3000 tons which precludes foaming to attain the desired foamed railroad tie of applicant's claim 21.

Applicant's independent claim 10 as amended pertains to a foamed product of a specific PET composition with designated elastomeric-containing material. Desirably, the foamed product is of a microcellular closed cell composite with discontinuous voids and/or an open cell composite with semi-continuous voids.

Antecedent basis and support for the amended matter in claim 1 is found in the specification at: page 3, lines 22 et seq.; page 7, lines 8-10; page 12, lines 3 et seq; page 15, lines 30-31; page 16, lines 1-21 and elsewhere in the specification.

The cited references of Parker, Lee, Bredael, Segrest, Banerjee and Akkapeddi et al., do not disclose a foamed product as required in applicant's amended independent claim 10. Furthermore, while the references disclose a PET presence as an incidental and minor material as a discontinuous filler in some other polymer, such as polyethylene, the references do not disclose a microcellular closed cell composite with discontinuous voids and/or an open cell composite with semi-continuous voids, as required in applicant's amended independent claim 10.

It is submitted that it would not be an obvious matter of choice for one skilled in the art to reconstruct Lee, Segrest and the other references to achieve applicant's invention as recited in applicant's amended independent claim 10 claims and applicant's other claims without the benefit of hindsight of applicant's disclosure and such is clearly improper. As the Federal Circuit Court of Appeals (formerly the U.S. Court of Customs and Patent Appeals) has emphasized, the Examiner must be ever alert not to read

obviousness into an application on the basis of applicant's own statements and must further view the prior art without reading into that art applicant's teachings, *In re Sponnoble*, 405 F. 2d 578, 160 USPQ 273 (CCPA 1969). It is not enough for a valid rejection of the patent application to view the prior art in retrospect; once applicant's disclosure is known, the prior art should be viewed by itself to see if it fairly discloses what the applicant has done, *In re Schaffer*, 220 F. 2d 476, 108 USPQ 326 (CCPA 1956).

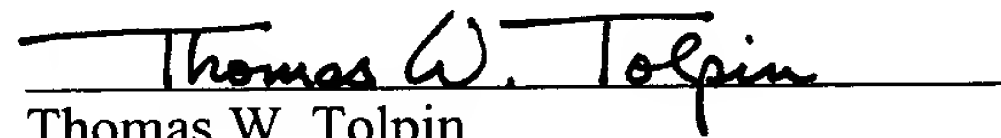
Applicant's claims 11, 12 and 18-20 are directly dependant upon applicant's amended independent claim 10 and, thereby requires all the structural elements and limitations of applicant's amended independent claim 10, as well as structural features and limitations, which in combination, are not fairly taught or suggested by the cited references.

In summary, applicant's composition as recited in the amended claims and the new claim, provides a very useful and user friendly product, which is not anticipated or obvious from Parker, Lee, Bredael, Segrest, Banerjie, Akkapeddi et al. and the other references.

Inasmuch as the preceding amendment complies with the Primary Examiner's requests, cures the Primary Examiner's objections and patentably distinguishes applicants' remaining claims over the cited prior art references of record, it is respectfully submitted that the above-identified application is now in condition for allowance. A Notice of Allowance is respectfully requested.

The Primary Examiner is invited and encouraged to contact the undersigned attorney in order to expedite this application to allowance, if the preceding does not already place the above-identified application in condition for allowance.

Respectfully submitted,

  
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Paul J. CAHILL	) Group Art Unit: 1712
		)
Serial No:	09/811,250	) Primary Examiner: Patricia A. Short
		)
Filed:	March 16, 2001	) Attorney Docket No: 7613-80971
		)
For:	COMPOSITES FOR RAILROAD	) Confirmation No. 8270
	TIES AND OTHER PRODUCTS	)

**CLEAN VERSION OF ENTIRE SET OF PENDING CLAIMS**

A clean version of the entire set of pending claims is enclosed in accordance with 37 CFR 1.121 (c) (3).

Each claim of the clean version of the entire set of claims begins on a separate page in order to facilitate optical scanning of the claims by the U.S. Patent and Trademark Office.

Sub C1  
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1. (Amended) A product primarily of a PET matrix composition of recycled materials, said PET matrix composition consisting essentially of a micro cellular closed cell composite with discontinuous voids, said PET matrix composition comprising:  
polyethylene terephthalate (PET); and  
elastomeric material.
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SubC9

2. (Amended) A product in accordance with claim 1 wherein said PET

comprises recycled plastic bottles comprising PET.

Be



B3 sub c3

3. (Amended) A product accordance with claim 1 wherein said  
elastomeric material comprises recycled tires.

Subcy  
B4

4. (Amended) A product in accordance with claim 3 wherein said elastomeric material further comprises ethylene-propylene-diene monomer (EPDM) selected from the group consisting of: wiper blades and door gaskets.

*Sub C5*

5. (Amended) A product in accordance with claim 1 wherein said elastomeric material comprises at least one elastomeric selected from the group consisting of: styrene-butadiene, polybutadiene, polyisoprene, and natural rubber.

Sub C6

B6

9. (Amended) A product in accordance with claim 1 selected from the group consisting of: a docking post, telephone pole, dock support, deck, boat slip, pier, stake, shovel, rake, ax handle, hammer, handles, shingle, baseball bat, and cricket bat.

10. (Amended) A foamed product selected from the group consisting of a

micro cellular closed cell composite with discontinuous voids, an open cell composite with semi-continuous voids, and combinations thereof, said foamed product having a composition, comprising by weight:

from about 5% to about 95% polyethylene terephthalate (PET)

with an inherent viscosity (I.V.) from about 0.4 to about 0.9; and

from about 5% to about 50% elastomeric-containing material

selected from the group consisting of styrene-butadiene, polybutadiene, polyisoprene, and natural rubber.

Subc8

11 (Amended) A foamed product having a composition in accordance with claim 10 comprising by weight:

from about 20% to about 80% PET with an inherent viscosity from about 0.5 to about 0.8; and

from about 10% to about 45% elastomeric-containing material with a density from about 0.9 to about 0.96 g/cc.

B8

Subc9  
B9

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12. (Amended) A foamed product having a composition in accordance  
with claim 10 comprising:  
from about 30% to about 60% PET with an inherent viscosity  
from about 0.6 to about 0.7; and  
from about 20% to about 40% elastomeric-containing material.

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§ 10  
Sub C 10

18. (Amended) A foamed product having a composition in accordance with claim 10 wherein:  
said PET comprises recycled PET bottles; and  
said elastomeric-containing material comprises granulated or pulverized recycled tires.



Bro Sub C11

19. (Amended) A foamed product having a composition in accordance with claim 18 further comprising ethylene-propylene-diene monomer (EPDM) selected from the group consisting of vehicle wiper blades, door gaskets, vehicle seals, and refrigerator seals.

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(Amended)

A foamed product having a selected from the group

consisting of: a railroad tie, post, beam, strut, plank, pole, dock support, deck, boat slip,  
pier, stake, shovel, rake, ax handle, hammer, handle, shingle, baseball bat, and cricket  
bat.

21 (New) A product in accordance with claim 1 comprising a foamed  
railroad tie.

B/C  
Sub C13